Milling & Baking News

Weekly Since 1922

Volume 69 Number 30 | September 25, 1990 | Sixty-Seven Dollars Per Year

ON THE INSIDE

Flowers ready for growth 15
Chairman Amos R. McMullian sees fiscal 1991 as one of best years ever, citing strength in resources, operations, people.

Baked foods prices up 47
Consumer Price Index for Bakery Products increases in August by almost 1%; white bread, cookies, cupcakes lead upturn.

Ingredient week 9

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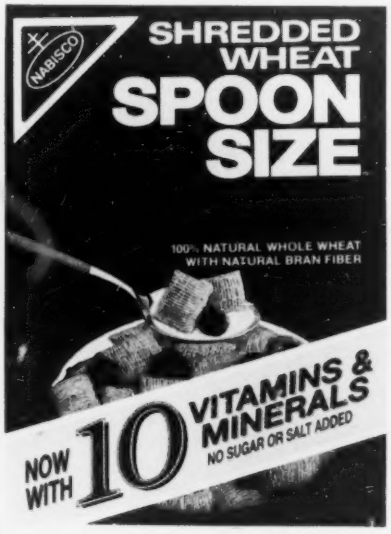
MILLING CENSUS REPORT


NABISCO
SHREDDED WHEAT
SPOON SIZE
100% NATURAL WHOLE WHEAT WITH NATURAL BRAN FIBER
NOW WITH 10 VITAMINS & MINERALS
NO SUGAR OR SALT ADDED

Cereal manufacturers, including Nabisco Brands, Inc. with its Shredded Wheat Spoon Size Plus, are focusing promotional efforts on successful, longstanding product lines, according to "Product Perspective: Breakfast Cereals," beginning on Page 35.

Yeutter intends to set 15% wheat acreage reduction

WASHINGTON, Sept. 24. — With winter wheat farmers working overtime to sow the 1991 crop, Secretary of Agriculture Clayton Yeutter announced last week his intention to include a 15% acreage reduction program as part of the 1991 wheat program, clearing up weeks of uncertainty over a key element of the government's wheat program.

The decision was the result of an informal agreement between the Secretary and congressional leaders on a 15% land diversion program. Previously, Mr. Yeutter had said he intended to set the wheat A.R.P. at between 10% and 20%, indicating that he could not be more definitive without new farm legislation for the 1991 crop year.

On a separate track, Congress advanced the 1990 farm bill by selecting agriculture committee members of the conference panel that will forge the separate House- and Senate-passed bills into a single version. In still other action, a split over the future of federal crop insurance widened as a Senate committee voted to fund the program in fiscal year 1991.

Upon announcing tentatively the 15% A.R.P., Mr. Yeutter said, "I am pleased that the conferees acted so quickly on this important issue for winter wheat growers. This action proves that farm policy disagreements can be resolved smoothly and quickly when Congress and the administration work together for the benefit of agriculture."

Mr. Yeutter cited, as key to making the announcement, actions taken by Congress to

Continued on Page 21

LATE NEWS HIGHLIGHTS

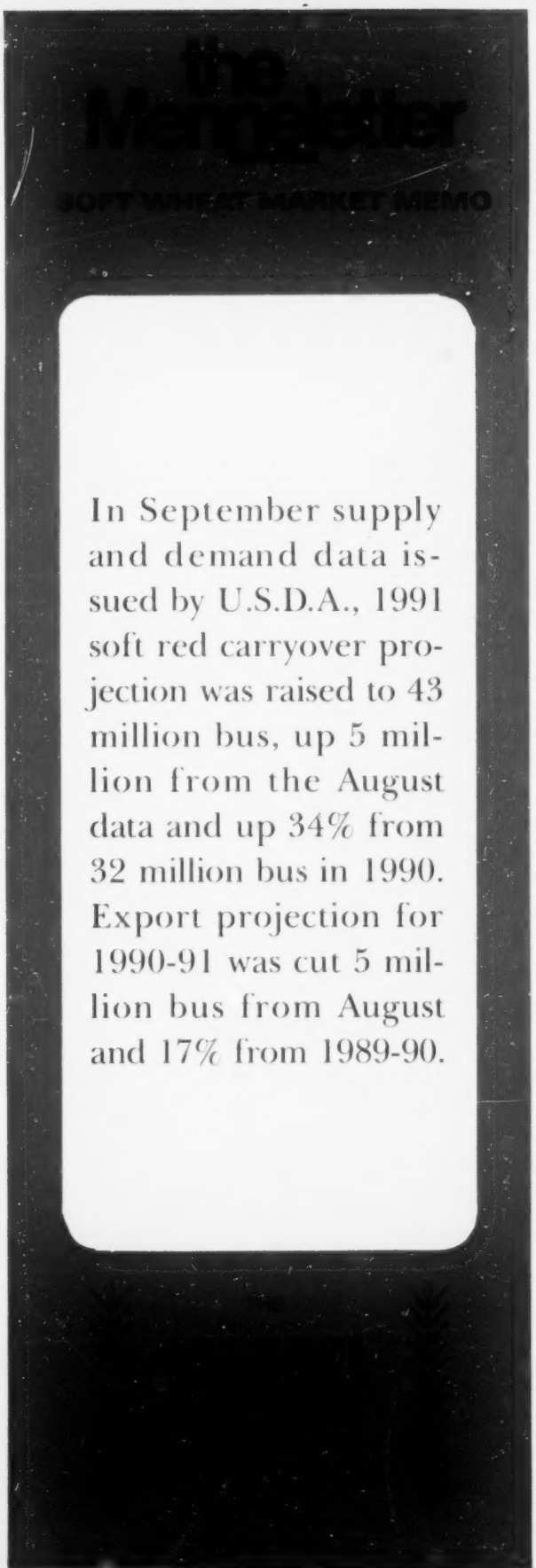
Continental plans microwaveable bread

KANSAS CITY, Sept. 24. — Local sources said that Continental Baking Co., the nation's largest wholesale bread and cake baker, will introduce a microwaveable bread product in the Kansas City market within the next several weeks. A spokesperson for Continental Baking at its St. Louis headquarters would not confirm the introduction, citing the company's policy not to discuss new products before they are launched. It was uncertain whether the microwave product would be introduced only in the Kansas City market, in several test markets or on a national basis. Earlier this summer, General Mills, Inc., Minneapolis, and Gai's Seattle French Baking Co., Seattle, entered into a partnership venture in which Gai's began offering microwaveable bread under the Betty Crocker label (see *Milling & Baking News* of June 19, Page 9). A spokesman for General Mills said that the indicated product launch by Continental Baking was not connected with the General Mills project, which was designed for additional partnerships with other regional baking companies. The General Mills spokesman noted that the Minneapolis-based company plans to announce further developments in its microwaveable bread project in about a week.

Lin Zhongming returns to Ceroilfood as president

BEIJING, Sept. 24. — Lin Zhongming, who has a background in grain trading, has been named president of the China National Cereals, Oils and Foodstuffs Import & Export Corp., succeeding Chen Faxian, president of Ceroilfood (COFCO) for the past several years. Mr. Lin is well known to the international grain industry, having spent earlier years in his career with the corporation that has responsibility for a broad range of food-related activities in China, including import purchases and export sales of all grains and grain products. In recent years, Mr. Lin had been head of Everbrite, a Chinese trading entity in China. He previously was deputy manager of Ceroilfood and in that capacity served as co-chairman of the "grain markets analysis" section of the grain, milling and baking

Continued on Page 9


the
Marketer
SOFT WHEAT MARKET MEMO
In September supply and demand data issued by U.S.D.A., 1991 soft red carryover projection was raised to 43 million bus, up 5 million from the August data and up 34% from 32 million bus in 1990. Export projection for 1990-91 was cut 5 million bus from August and 17% from 1989-90.

Milling & Baking News

VOLUME 69
NUMBER 30
SEPTEMBER 25, 1990

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Subscription rates: One year $67, two years $105, in the United States; all other countries (including Canada and Mexico) $107 per year. Single copies $2. FIRST CLASS SUBSCRIPTION in the United States $162 per year. AIR MAIL RATES to other countries quoted on request. Group subscriptions for five or more $58 per year. Service will start with the first available issue after receipt of your order; delivery should be accomplished within 30 days.

Audited Paid Circulation

ABP

Milling & Baking News (USPS 508-300) published weekly by Sosland Publishing Co., 9000 W. 67th St. Merriam, Kansas 66202 (a suburb of Kansas City, Missouri). Second class postage paid at Shawnee Mission, KS, and additional office. Postmaster: Send form 3579 to P.O. Box 29155, Shawnee Mission, KS 66201.

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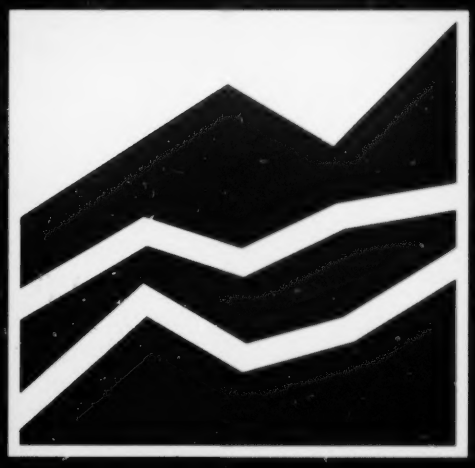

MILLING CENSUS REPORT

(FINAL)

Milling & Baking News

BUHLER

Buhler Inc.

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Dear Milling and Baking Executive,

Last year our company was proud to sponsor the preliminary analysis of the grain mill products and mix industry Census, and we are pleased to follow this with the sponsorship of this year's final report.

We commented last year on the many challenges that would face those in the milling, baking, grain and related industries during the decade of the 1990s, but few could have foreseen the dramatic events that have taken place in so many parts of the world during the past year.

These events could, however, present new and exciting opportunities for the milling and related industries in the United States and abroad, and we in the Buhler organization look forward to working with you in the coming years by offering the very best in technology and equipment.

In sponsoring this final report, we would like to thank all of our many customers for making us part of their success.

Sincerely yours,

Hans Wanzenried,
Group Vice President

Milling growth prevails; record volume

Continued growth in value of shipments and value added by manufacture, and a record in poundage product shipments, are detailed in the final 1987 Census of Manufactures report for the Flour and Other Grain Mill Products Industry, Standard Industrial Classification 2041. In addition, the Census report confirmed a marked slowing in the long-time decrease in plant and company numbers in flour milling.

MILLING CENSUS REPORT

The Flour and Other Grain Mill Products Industry, according to Department of Commerce definitions, is made up of "establishments primarily engaged in milling flour or meal from grain, except rice." Establishments primarily engaged in preparing mixes or doughs from purchased flour make up the newly defined Prepared Flour Mixes and Doughs Industry, S.I.C. 2045, previously known as the Blended and Prepared Flour Industry.

The Census counted 240 companies in S.I.C. 2041 in 1987, down from 251 in 1982. That 11-company decrease was considerably smaller than the 49-company drop in the 1977-82 period. Similarly, less shrinkage in mill numbers was noted in the 1987 Census. It counted 358 mills, off only two plants from 1982. The moderation in decreasing plant numbers largely reflected an increase of seven mills in the fewer-than-20-employe category in 1987. The 1982 Census showed a 47-plant decrease from 1977 in flour milling.

Larger milling plants, while decreasing in number in 1987, continued to account for a major share of the flour market. The 40 mills with 100 or more employes, for example, while representing only 11% of total mill numbers, accounted for 46% of the industry's value of shipments and 50% of the value added by manufacture.

According to the Census, the 358 mills in S.I.C. 2041 had 13,300 employes, of which 9,900 were production workers. In 1982, the 360 mills had total employment of 15,100, of which 11,400 were in production positions.

Other Census findings, as detailed in this special section, include the following:

- Wheat flour shipments aggregated a record 327.3 million cwts, up 14% from the previous peak of 287.6 million in 1982.
- Poundage shipments of the largest wheat flour product category — bakers' and institutional white bread-type flour — in 1987 was up 24% from 1982.
- While wheat and corn usage by mills in 1987 was up sharply from 1982 levels, total cost of materials, ingredients and containers and supplies was down, reflecting sharply lower grain costs.

Value of shipments by plants in the Flour and Other Grain Mill Products Industry in 1987 was up only 1% from 1982, but value added by manufacture increased 22%. That compared with gains of 34% and 33%, respectively, in 1982 from 1977.

Value added is considered by the Bureau of the Census to be the best value measure available for comparing relative economic importance of manufacturing among industries and geographic areas. According to the Bureau of the Census, value added is derived "by subtracting the cost of materials, supplies, containers, fuels, purchased electricity and contract work from the value of shipments. The result of this calculation is adjusted by the addition of value added by merchandising operations plus the net change in finished goods and work in process between the beginning and end-of-year inventories."

Value added by plants in the Flour and Other Grain Mill Products Industry in 1987 was $1,336.7 million, compared with $1,094.3 million in 1982. Value added numbers from earlier Census years are not fully comparable.

Total value of shipments for establishments classified in S.I.C. 2041 in 1987 totaled $4,984.8 million, up slightly from $4,932.8 million in 1982 and compared with $3,683.3 million in 1977. The value of shipments and value added by manufacture figures are in dollars current for the Census year specified and are not adjusted for inflation. During the 1982-87 period, the Producer Price Index for flour actually decreased 7.2 percentage points; the index for flour base mixes and doughs decreased 2.7 percentage points.

The Census report showed that 98% of the value of shipments by the Flour and Other Grain Mill Products Industry in 1987 was in products classified as primary to the industry. This specialization ratio was up slightly from 97% in 1982 and was the same as in 1977.

Of total shipments by establishments in the Flour and Other Grain Mill Products Industry, $4,556.4 million was in primary products, $80.5 million was in secondary products and $348 million was in miscellaneous receipts. Comparable totals in 1982 were $4,590.1 million, $124.8 million and $217.9 million, respectively.

"Coverage ratios" in the Flour and Other Grain Mill Products Industry in 1987 reversed a downward trend. The coverage ratio is the ratio of primary products shipped by establishments in the industry to the total shipments of such products by all manufacturers, wherever classified. This ratio in the Flour and Other Grain Mill Products Industry in 1987 was 97%, up from 94% in both 1982 and 1977.

The 1987 Census placed total wheat flour shipments by all establishments, regardless of industry classification, at 327,305,400 cwts, up 14%, or 39,703,400 cwts, from 287,602,000 cwts in 1982. The total in 1977 was 282,133,000 cwts.

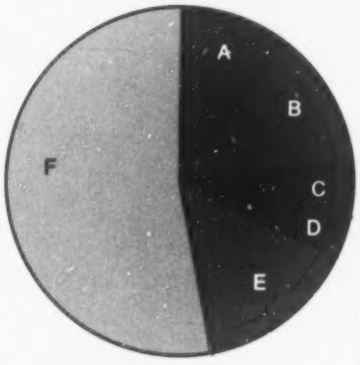
While the preliminary Census report does not provide a total volume shipment figure for the Flour and Other Grain Mill Products Industry, aggregating the shipment data for individual product categories indicated that shipments in 1987 totaled 370,294,000

Milling Census at a glance . . .

Seven industries use majority of domestic wheat flour 5-A
New, but incomplete, data on frozen doughs, batters 9-A
Minnesota regains lead in wheat flour shipments..... 10-A
Wheat, corn use up; costs decline 11-A

Advertising sponsor: Buhler Inc. 2-A, 6A-7A, 12-A

Wheat flour shipments by type, 1987



A.	10%	Other than white flour
B.	13%	Family flour
C.	5%	Exports
D.	4%	Shipped to blenders
E.	15%	Bakers' and institutional soft wheat flour
F.	53%	Bakers' and institutional white bread-type flour

Flour, Other Grain Mill Products shipments

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included.

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
2041- —	**FLOUR AND OTHER GRAIN MILL PRODUCTS**						
	Total	**(NA)**	**(X)**	**4 680.1**	**(NA)**	**(X)**	**4 871.2**
20411 —	Wheat flour, except flour mixes	(NA)	(X)	3 218.7	(NA)	(X)	3 102.3
	White flour:						
	Shipped for export:						
20411 05	Commercial dollar exports, all white flour types (1,000 sacks (cwt))	12	17 310.6	140.6	13	4 327.3	43.6
20411 07	All other exports of white flour, such as those under Public Law 480 (do.)	5	(S)	97.5	9	9 191.2	94.5
	Domestic shipments:						
	Bakers' and institutional white bread-type flour:						
20411 11	Shipped in bulk cars or trucks (1,000 sacks (cwt))	21	**149 500.8	1 326.2	22	120 204.9	1 231.3
20411 13	Shipped in containers, including tote bins (do.)	16	23 526.3	256.1	18	19 729.9	239.6
	Bakers' and institutional soft wheat flour, including commercial bakery, restaurant, hospital, etc.:						
20411 15	Shipped in bulk cars or trucks (1,000 sacks (cwt))	24	38 640.3	320.9	30	52 742.8	498.2
20411 17	Shipped in containers, including tote bins (do.)	20	8 692.7	89.8	19	5 171.0	56.6
	Family white flour:						
	All family flour other than self-rising, such as phosphated, plain, bromated, enriched, and all-purpose, including all-purpose purchased by the U.S. Government for domestic donation:						
20411 21	Shipped in containers less than 25 lb (1,000 sacks (cwt))	24	*29 059.2	358.5	24	20 360.8	311.7
20411 23	Shipped in containers 25 lb or more (do.)	16	*9 907.7	99.3	17	3 019.2	48.8
20411 26	Self-rising flour (do.)	15	3 664.1	66.2	(NA)	4 884.0	84.7
	Flour shipped to blenders or other processors (for further processing and/or packing before resale or shipment):						
20411 29	For use in food products (mixes, refrigerated doughs, soups, etc.) (1,000 sacks (cwt))	12	**9 795.5	81.6	18	17 618.6	163.2
20411 28	For use in nonfood products (pet food, industrial, etc.) (do.)	10	*3 062.3	16.6	10	3 549.5	25.7
	Other than white flour:						
20411 31	Whole wheat (1,000 sacks (cwt))	16	5 383.4	50.4	17	2 465.9	27.8
20411 51	Durum flour and semolina (do.)	10	26 727.8	258.3	9	17 676.5	192.9
20411 61	Bulgur (do.)	5	(S)	30.1	5	5 171.2	49.4
20411 98	Other wheat flour, including farina (do.)	10	2 022.7	21.4	11	1 489.2	18.0
20411 00	Wheat flour, except flour mixes (including white flour, whole wheat, durum, etc., made from wheat ground in this plant), n.s.k.	(NA)	(X)	5.2	(NA)	(X)	16.3
20412 —	**Wheat mill products other than flour**	**(NA)**	**(X)**	**336.9**	**(NA)**	**(X)**	**478.5**
20412 13	Wheat mill feed (1,000 s tons)	42	*5 353.7	298.3	64	5 061.9	456.9
20412 19	Other wheat mill products, including wheat germ, wheat bran, etc. (do.)	20	307.4	38.4	9	28.6	8.4
20412 00	Wheat mill products other than flour, n.s.k.	(NA)	(X)	.2	(NA)	(X)	13.2
20413 —	Corn mill products	(NA)	(X)	561.2	(NA)	(X)	553.8
	Corn products for human consumption:						
20413 11	Whole cornmeal (1,000 sacks (cwt))	14	(S)	36.8	22	3 191.2	51.2
20413 15	Degermed cornmeal (do.)	11	*11 856.6	165.3	12	7 648.3	111.8
20413 21	Corn grits and hominy, except for brewers' use (do.)	7	**8 310.1	54.5	10	6 746.3	87.8
20413 23	Corn grits and flakes for brewers' use (do.)	4	*3 147.9	18.5	8	5 537.4	55.0
20413 65	Hominy feed, cornmeal, and other byproducts of dry corn milling (for animal feed) (1,000 s tons)	18	*823.7	68.9	40	1 396.7	138.2
20413 93	Corn flour (1,000 sacks (cwt))	8	(S)	118.8	8	4 785.7	51.9
	Other corn mill products:						
20413 95	For human consumption (1,000 sacks (cwt))	8	8 272.0	89.9	11	2 858.6	44.5
20413 97	Not for human consumption (do.)	5	1 095.5	7.7	5	412.2	3.5
20413 00	Corn mill products, n.s.k.	(NA)	(X)	7	(NA)	(X)	10.0
20416 —	**Other grain mill products**	**(NA)**	**(X)**	**82.2**	**(NA)**	**(X)**	**165.6**
20416 11	Rye flour (1,000 sacks (cwt))	3	1 103.5	9.2	6	1 434.8	18.6
20416 23	Other flour (excluding wheat, corn, rye) (do.)	4	(D)	(D)	9	3 063.6	44.9
20416 27	Other mill feed (oats, rye, buckwheat, etc.) (1,000 s tons)	9	(D)	(D)	13	613.5	101.7
20416 00	Other grain mill products, n.s.k.	(NA)	(X)	1.4	(NA)	(X)	2.5
20410 —	Flour and other grain mill products, n.s.k.	(NA)	(X)	150.5	(NA)	(X)	188.9
20410 00	Flour and other grain mill products, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	13.5	(NA)	(X)	141.4
20410 02	Flour and other grain mill products, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	137.0	(NA)	(X)	47.5

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-records data rather than data actually collected from respondents. Employment cutoffs used for administrative-records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

cwts, up 10% from 337,931,500 cwts in 1982.

Total value of these shipments in 1987 was $4,690.1 million, down 4% from $4,871.2 million in 1982.

In detailing shipments of all wheat flour, the Census report broke out shipments of white, whole-wheat, durum, bulgur and other wheat flour. Shipments of white flour, including export and domestic use, were 293,171,500 cwts in 1987, up 12% from 260,799,200 cwts in 1982 and compared with 250,810,000 in 1977. Value of these shipments in 1987 was $2,853.3 million, up 2% from $2,797.9 million in 1982.

Larger domestic white flour use

White flour shipments in 1987 included 275,860,900 cwts for domestic use, up 12% from 247,280,700 cwts in 1982, and at least 17,310,600 cwts of flour shipped for export, up 28% from 13,518,500 cwts in 1982. Some export data were withheld in 1987 because the estimate did not meet publication standards on the basis of either the response rate or a consistency review.

Domestic white flour shipments in 1987 included 173,029,100 cwts of bakers' and institutional white bread-type flour, 47,333,000 cwts of bakers' and institutional soft wheat flour, 42,641,000 cwts of white family flour and 12,857,800 cwts of flour shipped to blenders or processors.

The 173,029,100 cwts of bakers' and institutional white bread-type flour — the largest wheat flour product category — represented an increase of 24% from 139,934,800 cwts in 1982. That increase contrasted with the previous five-year period when 1982 shipments were down 4% from 145,781,700 cwts in 1977.

Of the total shipments of bakers' and institutional white bread-type flour in 1987, bulk shipments aggregated 149,500,800 cwts, up 24% from 120,204,900 cwts in 1982, while shipments in containers, including tote bins, totaled 23,528,300 cwts, up 19% from 19,729,900 cwts in 1982.

In contrast with the 24% increase in shipments of bakers' and institutional white bread-type flour, shipments of bakers' and institutional soft wheat flour in 1987 were down 18%, totaling 47,333,000 cwts, compared with 57,913,800 cwts in 1982.

Accounting for the decrease in all shipments of bakers' and institutional soft wheat flour in 1987 was a 27% decline in bulk shipments, which totaled 38,640,300 cwts, against 52,742,800 cwts in 1982. That decline was partially offset by a 68% increase in shipments of bakers' and institutional soft wheat flour in containers — 8,692,700 cwts in 1987, against 5,171,000 in 1982.

In 1987, white flour represented 79% of total shipments of bakers' and institutional flour (220,362,100 cwts) while soft wheat flour accounted for 21% of the total. In 1982, the respective shares were 71% and 29%. In the 1977 Census, white flour represented 77% of the total with soft wheat flour accounting for the remaining 23%.

Shipments of family flour in 1987, according to the Census report, totaled 42,641,000 cwts, up 51% from 28,264,000 cwts in 1982 and compared with 26,133,000 cwts in 1977. Accuracy of the 1987 numbers was questioned by many observers in light of the downward trend in family flour usage throughout the 1980s. That pattern, according to major flour milling companies, ended last year with an upturn in family flour consumption.

The Census totals included all-purpose flour purchased by the federal government for domestic donation.

Shipments of family flour in containers of less than 25 lbs totaled 29,069,200 cwts in 1987, up 43% from 20,360,800 cwts in 1982. Shipments of family flour in containers of 25 lbs or more were 9,907,700 cwts, up 228% from 3,019,200 cwts in 1982.

The Census report placed shipments of self-rising flour in 1987 at 3,664,100 cwts, down 25% from 4,884,000 cwts in 1982 and well below 6,386,400 cwts in 1977.

Shipments of white flour to blenders or other food processors for use in food products in 1987 totaled 9,795,500 cwts, down 44% from 17,618,600 cwts in 1982. These usages include mixes, refrigerated doughs and soups. Shipments of white flour for use in nonfood products in 1987 totaled 3,062,300 cwts, down 14% from 3,549,500 cwts in 1982.

Value of shipments of domestic white flour in 1987, according the Census, aggregated $2,615.2 million, down 2% from $2,659.8 million in 1982. The total for 1987 included $1,582.3 million in bakers' and institutional white bread-type flour, up 8% from $1,470.9 million in 1982; $410.7 million in bakers' and institutional soft wheat flour, down 26% from $554.8 million; $524 million in family flour, up 18% from $445.2 million; and $98.2 million in flour shipped to blenders or processors, down 48% from $188.9 million.

According to the Census report, 1987 shipments of other flour products, including whole-wheat flour, durum flour and semolina, bulgur flour and other wheat flour, such as farina, were up from 1982 levels.

Shipments of wheat flour, other than white, in 1987 totaled 34,133,900 cwts, up 27% from 26,802,800 cwts in 1982. The 1987 total is inexact because data for one category — bulgur flour — were withheld as the estimates did not meet publication standards. Value of shipments for the overall category in 1987 was $360.2 million, up 25% from $288.1 million in 1982.

Whole-wheat flour shipments up

Whole-wheat flour shipments in 1987 were placed at 5,383,400 cwts, up 118% from 2,465,900 cwts in 1982. Shipments of durum flour and semolina in 1987 totaled 26,727,800 cwts, up 51% from 17,676,500 cwts in 1982, and shipments of other wheat flour aggregated 2,022,700 cwts, up 36% from 1,489,200 cwts in 1982.

Value of shipments of whole-wheat flour in 1987 was $50.4 million, up 81% from $27.8 million in 1982; value of durum flour and semolina shipments in 1987 was $258.3 million, up 34% from $192.9 million in 1982. Value of other wheat flour shipments in 1987 totaled $21.4 million, up 19% from $18 million in 1982.

Shipments of corn mill products for human consumption in 1987, according to the Census report, totaled 23,314,600 cwts, down 3% from 24,123,200 cwts in 1982. These product shipments include whole corn meal, degermed corn meal, corn grits, flakes and hominy. Value of these shipments in 1987 was $275.1 million, down 10% from $305.8 million in 1982.

Shipments of rye flour, as an "other grain mill product," totaled 1,103,500 cwts in 1987, down 23% from 1,434,800 cwts in 1982; value of shipments was $9.2 million, down 45% from $16.6 million in 1982.

Seven industries use majority of domestic wheat flour in 1987

Establishments in seven industries used 82% of the total domestic wheat flour shipped in 1987 by the Flour and Other Grain Mill Products Industry for consumer food use.

The shipment aggregate, of 235,541,000 cwts, includes bakers' and institutional white and soft wheat flour, flour shipped to blenders or other food processors for consumer food use, and whole-wheat flour. It excludes family flour, durum flour and semolina, bulgur and other wheat flour, including farina.

According to the Census of Manufactures reports for industries making up S.I.C. 20, Food and Kindred Products, usage of wheat flour for consumer food products totaled at least 193,891,100 cwts. The remaining 41,650,000 cwts was used for nonfood purposes, such as in pet and animal feed, or in industries in which flour consumption data were not disclosed.

Wheat flour consumption by food industries and per cent of all flour shipments

Industry S.I.C. Number	Cwts used	%
Canned Specialties 2032	2,009,100	1
Frozen Specialties 2038	11,118,900	5
Cereal Breakfast Foods 2043	3,599,700	2
Bread and Cake 2051	139,226,000	59
Cookie and Cracker 2052	28,528,000	12
Frozen Bakery Products 2053	2,815,900	1
Food Preparations, N.E.C. 2099	6,593,500	3
Total	193,891,100	82*

*Industry percentages do not add to 82 because of rounding.

Mix, Dough and Batter shipments

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) also are included.

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Flour mixes, and refrigerated and frozen doughs, and batters	(NA)	(X)	3 162.1	(NA)	(X)	2 073.9
	Flour mixes:						
	Pancake and waffle mixes:						
	Shipped in containers of less than 5 lb (cwt)	(NA)	2 645.7	111.4	(NA)	3 380.4	152.3
20415 51	Made chiefly from flour milled in same establishment	10	1 653.8	56.3	8	726.1	37.9
20450 51	Made chiefly from purchased flour	4	991.9	55.1	10	2 654.3	114.4
	Shipped in containers of 5 lb or more	(NA)	2 387.4	88.3	(NA)	967.9	23.1
20415 52	Made chiefly from flour milled in same establishment	2	(D)	(D)	4	155.3	5.8
20450 52	Made chiefly from purchased flour	7	(D)	(D)	10	812.6	17.3
	Cake mixes, including gingerbread:						
	Shipped in containers of less than 5 lb (cwt)	(NA)	3 831.5	294.5	(NA)	7 562.8	549.3
20415 53	Made chiefly from flour milled in same establishment	6	(D)	(D)	5	1 381.9	97.8
20450 53	Made chiefly from purchased flour	8	(D)	(D)	12	618.1	451.5
	Shipped in containers of 5 lb or more	(NA)	4 861.1	371.2	(NA)	1 147.8	54.8
20415 54	Made chiefly from flour milled in same establishment	4	(D)	(D)	3	329.4	12.4
20450 54	Made chiefly from purchased flour	18	(D)	(D)	18	818.4	42.4
	Biscuit mixes:						
	Shipped in containers of less than 5 lb (cwt)	(NA)	1 443.6	61.5	(NA)	1 045.2	27.5
20415 56	Made chiefly from flour milled in same establishment	10	(D)	(D)	7	525.7	20.0
20450 56	Made chiefly from purchased flour	3	(D)	(D)	4	519.5	7.5
	Shipped in containers of 5 lb or more	(NA)	378.1	17.8	(NA)	733.9	27.5
20415 57	Made chiefly from flour milled in same establishment	3	(D)	(D)	6	212.5	8.5
20450 57	Made chiefly from purchased flour	6	(D)	(D)	11	521.4	19.0
	Pie crust mixes	(NA)	231.4	16.2	(NA)	(D)	(D)
20415 60	Made chiefly from flour milled in same establishment	1	(D)	(D)	2	(D)	(D)
20450 60	Made chiefly from purchased flour	6	(D)	(D)	9	(D)	(D)
	Doughnuts and other sweet yeast goods mixes	(NA)	7 102.0	202.8	(NA)	4 717.0	150.6
20415 63	Made chiefly from flour milled in same establishment	3	(D)	(D)	3	(D)	(D)
20450 63	Made chiefly from purchased flour	14	(D)	(D)	17	(D)	(D)
	Bread and bread-type roll mixes:						
	Shipped in containers of less than 5 lb (cwt)	(NA)	826.5	28.2	(NA)	3 092.6	58.5
20415 66	Made chiefly from flour milled in same establishment	3	(D)	(D)	2	(D)	(D)
20450 66	Made chiefly from purchased flour	3	(D)	(D)	5	(D)	(D)
	Shipped in containers of 5 lb or more	(NA)	2 490.7	121.0	(NA)	2 942.9	56.4
20415 67	Made chiefly from flour milled in same establishment	4	534.1	18.3	5	693.3	17.0
20450 67	Made chiefly from purchased flour	13	1 958.6	102.7	15	1 749.6	41.4
	Other prepared flour mixes, including cookie mixes:						
	Shipped in containers of less than 5 lb (cwt)	(NA)	4 853.8	328.0	(NA)	5 325.1	318.0
20415 72	Made chiefly from flour milled in same establishment	5	(D)	(D)	8	1 660.8	75.6
20450 72	Made chiefly from purchased flour	8	(D)	(D)	12	3 664.3	242.4
	Shipped in containers of 5 lb or more	(NA)	4 566.0	172.7	(NA)	4 304.1	109.1
20415 74	Made chiefly from flour milled in same establishment	4	580.3	11.3	10	865.7	20.2
20450 74	Made chiefly from purchased flour	13	3 985.7	161.4	13	3 438.4	88.9
	Refrigerated doughs and batters:						
	Biscuit dough	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 81	Made chiefly from flour milled in same establishment	-	-	-	-	-	-
20450 81	Made chiefly from purchased flour	4	(D)	(D)	4	(D)	(D)
	Bread and bread-type roll dough, including dinner	(NA)	(D)	(D)	(NA)	(D)	(D)
20415 85	Made chiefly from flour milled in same establishment	-	-	-	-	-	-
20450 85	Made chiefly from purchased flour	2	(D)	(D)	5	(D)	(D)
	Other doughs and batters	(NA)	391.2	281.0	(NA)	129.0	75.8
20415 87	Made chiefly from flour milled in same establishment	3	(D)	(D)	2	(D)	(D)
20450 87	Made chiefly from purchased flour	12	(D)	(D)	15	(D)	(D)
	Frozen doughs and batters:						
	Bread and bread-type roll dough	(NA)	852.6	332.7	(NA)	-	-
20415 91	Made chiefly from flour milled in same establishment	1	(D)	(D)	(X)	(X)	(X)
20450 91	Made chiefly from purchased flour	26	(D)	(D)	(X)	(X)	(X)
	Other doughs and batters	(NA)	529.0	253.5	(NA)	(X)	(X)
20415 93	Made chiefly from flour milled in same establishment	-	-	-	(X)	(X)	(X)
20450 93	Made chiefly from purchased flour	30	529.0	253.5	(X)	(X)	(X)
	Flour mixes, and refrigerated doughs and batters, n.s.k.	(NA)	(X)	24.5	(NA)	(X)	95.3
20415 00	Made chiefly from flour milled in same establishment	-	(X)	-	(NA)	(X)	(D)
20450 00	Made chiefly from purchased flour	(NA)	(X)	24.5	(NA)	(X)	(D)

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

First data on frozen doughs, batters

The Census of Manufactures for 1987 is the first to provide data on the increasingly important frozen dough and frozen batter product categories. At the same time, changes in industry definitions and the addition of new product categories resulted in a less complete data package than in previous Census years for the traditional flour mix and refrigerated dough and batter products.

MILLING CENSUS REPORT

Under a Department of Commerce revision of Standard Industrial Classification codes, S.I.C. 2045, previously the Blended and Prepared Flour Industry, now is designated as Prepared Flour Mixes and Doughs. This industry comprises establishments, other than flour mills, producing flour mixes and refrigerated and frozen doughs and batters. Data related to those mixes and doughs that are produced in flour mills are included under S.I.C. 2041, Flour and Other Grain Mill Products.

Despite withholding detailed data within specific industries for prepared mixes and doughs to avoid disclosing figures for individual companies, the Census did supply information on selected products primary to more than one industry, including S.I.C. 2041 and S.I.C. 2045 (see facing page).

Value of shipments gains 67%

According to the Census report for S.I.C. 2045, value of shipments of flour mixes and refrigerated and frozen doughs and batters by all plants other than flour mills — including those classified in S.I.C. 2045 and those classified in other industries — totaled $2,821.6 million, up 67% from $1,691.8 million in 1982.

Value of shipments of flour mixes and refrigerated and frozen doughs and batters in the Flour and Other Grain Mill Products Industry in 1987 was placed at $340.5 million. Value of shipment data for several product categories were withheld to avoid disclosing information for individual companies. Value of all shipments in 1982 was $382.4 million.

Value of shipments of flour mixes and refrigerated and frozen dough and batter products that were considered primary to more than one industry totaled $3,162.1 million in 1987, up 52% from $2,073.9 million in 1982. While the Census report did not provide a total volume shipment figure for these products, aggregating the available shipment data for individual product categories indicated that total shipments in 1987 were at least 35,617,800 cwts for flour mixes, 391.2 million lbs for refrigerated doughs and mixes and 1,381.6 million lbs for frozen doughs and mixes.

Within the flour mixes category, the Census report showed that "other prepared flour mixes, including cookie mixes" that were considered primary products to more than one industry paced poundage shipments in 1987. This category was followed by cake mixes; donut and other sweet yeast goods mixes; pancake and waffle mixes; bread and bread-type roll mixes; biscuit mixes, and pie crust mixes.

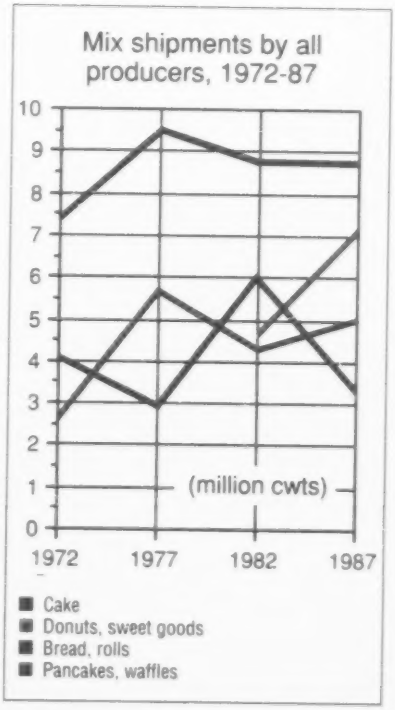
Shipments of "other prepared flour mixes" considered primary to more than one industry in 1987 totaled 9,419,800 cwts, down 2% from 9,629,200 cwts in 1982. Value of these shipments in 1987 was $500.7 million, up 17% from $427.1 million in 1982.

The Census report placed shipments of cake mixes considered as a primary product for more than one industry at 8,692,600 cwts, down 0.2% from 8,710,600 cwts in 1982. Value of these shipments was $665.7 million in 1987, up 10% from $604.1 million in 1982.

Donut, sweet goods mixes up

Shipments of donut and other sweet yeast goods mixes, as primary products to more than one industry, totaled 7,102,000 cwts in 1987, up 51% from 4,717,000 cwts in 1982. Value of these shipments in 1987 was $202.8 million, up 35% from $150.6 million in 1982.

Pancake and waffle mix shipments in 1987 aggregated 5,033,100 cwts, up 16% from 4,348,300 cwts in 1982. Value of shipments for pancake and waffle mixes in 1987 was $199.7 million, up 14% from $175.4 million.



According to the Census report, shipments of bread and bread-type roll mixes in 1987 totaled 3,317,200 cwts, down 45% from 6,035,500 cwts in 1982. Value of these shipments in 1987 was $149.2 million, up 28% from $116.9 million in 1982.

Biscuit mix shipments in 1987 were 1,821,700 cwts, up 2% from 1,779,100 cwts in 1982. The Census placed value of these shipments in 1987 at $79.3 million, up 44% from $55 million in 1982.

Shipments of pie crust mixes in 1987 totaled 231,400 cwts and value of shipments for this category was $16.2 million. Shipment and value of shipment data were withheld in 1982 to avoid disclosing information for individual companies.

In the refrigerated doughs and batters category, the 1987 Census report provided data only on shipments of "other doughs and batters" that were considered primary products for more than one industry. These shipments in 1987 totaled 391.2 million lbs, up 203% from 129 million lbs in 1982. Value of these shipments in 1987 was $281 million, up 271% from $75.8 million in 1982.

Regarding frozen doughs and batters considered as primary products for more than one industry, the Census in 1987 placed shipments of frozen bread and bread-type roll dough at 852.6 million lbs and value of shipments at $332.7 million. Shipments of "other frozen doughs and batters" in 1987 totaled 529 million lbs with value of shipments at $253.5 million. Data for these two categories are not comparable with 1982 because of the new Census classification for frozen doughs and batters.

Data available for 6 states

The six states for which the Census report provided data on value of shipments accounted for 39% of the $2,625.1 million total value of shipments for the Prepared Flour Mixes and Doughs Industry in 1987.

According to the Census report, Illinois led in value of shipments for S.I.C. 2045 in 1987 with an aggregate of $497.2 million, or 19% of the total. The remaining five states for which data were provided accounted for single-digit shares of the total. Value of shipments by Texas was placed at $190.3 million in 1987, or 7% of the total; Washington's value of shipments aggregated $119.4 million, or 5% of the total.

Accounting for 4% of the total value of shipments in the Prepared Flour Mixes and Doughs Industry in 1987 were both Ohio and Wisconsin, aggregating $104.8 million and $95.7 million, respectively. Oregon's value of shipments in 1987 was $25.3 million, or 1% of the total.

Historical statistics for S.I.C. 2041, 2045

(Data on value added, cost of materials and value of shipments are for all products, including those classified as secondary.)

Year	Companies (no.)	All establishments: Total (no.)	All establishments: With 20 employees or more (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)	Ratios: Specialization (percent)	Ratios: Coverage (percent)
INDUSTRY 2041, FLOUR AND OTHER GRAIN MILL PRODUCTS															
1987 Census	240	358	185	13.3	354.6	9.9	21.4	246.0	1 336.7	3 657.0	4 984.8	79.5	346.8	98	97
1986 ASM	(NA)	(NA)	(NA)	13.5	348.7	9.9	21.4	241.3	1 345.9	3 642.5	5 003.1	62.8	318.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	13.3	331.5	9.6	21.0	230.1	1 159.4	4 039.0	5 204.8	82.7	407.0	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	13.9	335.5	10.3	22.3	234.4	1 208.0	4 108.5	5 305.7	68.7	396.2	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	14.7	335.4	10.9	24.2	237.3	1 198.4	4 012.1	5 228.6	64.8	354.9	(NA)	(NA)
1982 Census	251	360	174	15.1	323.0	11.4	24.2	233.3	1 094.3	3 825.5	4 932.8	90.6	361.6	97	94
1981 ASM	(NA)	(NA)	(NA)	15.8	305.7	11.6	26.1	214.6	1 113.7	4 189.1	5 313.8	67.3	382.3	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	15.5	273.9	11.3	25.6	195.7	1 030.4	3 819.8	4 835.4	53.3	439.6	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	15.3	255.5	11.2	25.2	181.3	942.5	3 281.2	4 218.3	68.4	402.0	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	15.1	241.8	11.1	24.4	168.5	845.3	2 934.3	3 780.9	56.9	303.8	(NA)	(NA)
1977 Census	300	407	173	15.6	222.3	11.3	24.6	153.4	824.5	2 854.2	3 683.3	52.4	263.2	96	94
1976 ASM	(NA)	(NA)	(NA)	17.5	217.1	12.5	26.9	149.0	746.1	3 343.9	4 095.9	53.6	303.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	17.7	204.0	12.9	27.7	139.3	714.9	3 589.5	4 327.6	45.8	328.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	17.4	185.3	13.0	28.1	128.7	809.1	3 902.1	4 502.2	44.0	381.1	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	17.0	167.9	12.7	28.4	118.5	589.1	2 785.7	3 328.3	29.8	375.7	(NA)	(NA)
1972 Census	340	457	181	16.1	152.8	11.9	26.9	106.1	509.8	1 885.2	2 380.0	30.0	211.3	97	95
INDUSTRY 2045, PREPARED FLOUR MIXES AND DOUGHS															
1987 Census	118	149	97	12.1	275.9	8.2	16.5	156.8	1 278.8	1 339.6	2 625.1	66.1	152.6	89	78

Minnesota regains lead in wheat flour shipments

Minnesota in 1987 regained from New York the top ranking among states in terms of value of shipments of the leading category, "wheat flour products, except mixes," according to the Census of Manufactures for the Flour and Other Grain Mill Products Industry.

MILLING CENSUS REPORT

Minnesota, which ranked second in 1982 and first in 1977, jumped into first place in 1987 with value of shipments of wheat flour products, except mixes, reaching $324.5 million, virtually unchanged from $324.3 million in 1982. It ranked third in shipments of "wheat mill products other than flour," including millfeed, wheat germ and wheat mill products other than flour, not specified by kind. Value of shipments in this category was $26.6 million, down from $46.7 million in 1982. Minnesota in 1987 had 21 plants in S.I.C. 2041, two fewer than in 1982.

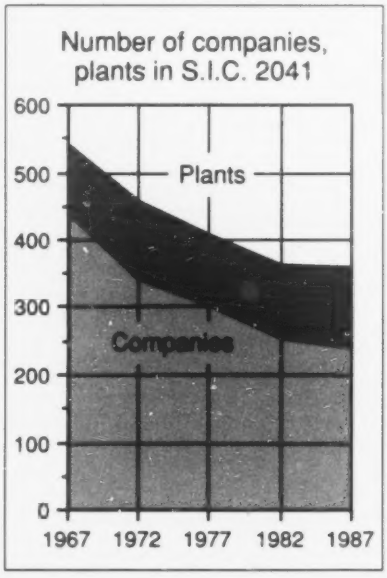
New York in 1987 ranked second in the value of shipments of both wheat flour products, except mixes ($313 million, down 4% from 1982) and of wheat mill products other than flour ($29.8 million, down 28% from 1982.) New York in 1987 continued to counter the long-term industry trend in plant numbers. It had 18 plants in the Flour and Other Grain Mill Products Industry, compared with 17 in 1982 and 15 in 1977.

Tennessee in 1987 ranked third in value of shipments of wheat flour products, except mixes ($299.9 million, up 84% from 1982). Tennessee was not included in the listing of the top 15 states in shipments of wheat mill products other than flour.

Kansas retained its first-place ranking in shipments of wheat mill products other than flour ($48.1 million, down 5% from 1982). Kansas in 1987 had 24 plants, the same as in 1982. Kansas, with 1987 value of shipments of wheat flour products, except mixes, at $281.3 million, down 12% from 1982, was fourth in that category.

California was fourth in shipments of wheat mill products other than flour ($23.3 million, down 17% from 1982).

The Census report showed a total of 358 establishments in the Flour and Other Grain Mill Products Industry in 1987, compared with 360 in 1982, 407 in 1977, 457 in 1972 and 541 in 1967. While plant numbers between 1982 and 1987 decreased by only two establishments, there was a net increase in the number of plants with fewer than 20 employes.



In 1987, there were 193 plants in the Flour and Other Grain Mill Products Industry with fewer than 20 employes, up from 186 in 1982. Plants with 20 to 99 employes in 1987 totaled 125, down from 127 in 1982. The number of plants with 100 or more employes totaled 40 in 1987, down from 47 in 1982.

Those 40 plants with 100 or more employes, while representing only 11% of total establishments in 1987, accounted for 50% of total value added by manufacture in the Flour and Other Grain Mill Products Industry. Those plants in 1987 also accounted for 46% of total value of shipments, 45% of the cost of all materials and ingredients purchased and 44% of new capital expenditures.

There were 149 plants in the Prepared Flour Mixes and Doughs Industry in 1987. Of the total, 52 had fewer than 20 employes, 56 had 20 to 99 employes and 41 had 100 or more employes. The 41 plants with 100 or more employes in 1987, or 28% of the industry total, accounted for 81% of value added by manufacture, 79% of the value of shipments, 76% of materials and ingredients consumed and 80% of new capital expenditures.

Wheat, corn usage up; costs in decline

The Flour and Other Grain Mill Products Industry in 1987 recorded sharp increases in the utilization of wheat and corn but cost of all materials, ingredients, containers and supplies used by the establishments in Standard Industrial Classification 2041 were below 1982 levels. Sharply lower grain costs were responsible, according to the Census of Manufactures report for S.I.C. 2041.

MILLING CENSUS REPORT

Total delivered cost of materials, ingredients, containers and supplies used by establishments in S.I.C. 2041 in 1987 for products considered primary to the industry aggregated $3,332.7 million, down 7% from $3,585.6 million in 1982.

Establishments in S.I.C. 2041 in 1987 used 744.9 million bus of wheat, up 14% from 652.2 million bus in 1982. With a delivered cost of $2,343.9 million, or $3.15 per bu, wheat accounted for 70% of the cost of all materials, ingredients, containers and supplies used by S.I.C. 2041 in 1987. Delivered cost of wheat in 1982 was $2,655.8 million, or $4.07 per bu, representing 74% of the total.

A similar cost situation was evident in the use of corn, which increased for the first time since 1967. Mills in 1987 used 100.1 million bus of corn, up 45% from 69.2 million in 1982. Delivered cost of corn used by mills in 1987 was $185.6 million, or $1.85 per bu, down 6% from $198.4 million, or $2.87 per bu, in 1982.

Utilization of wheat flour by establishments in the Flour and Other Grain Mill Products Industry in 1987 totaled 33,661,600 cwts, more than a threefold increase from 8,017,500 cwts in 1982. The 33,661,600-cwt total for wheat flour use in 1987 was revised dramatically from the preliminary Census data that showed usage of wheat flour in 1987 at 17,138,900 cwts.

Delivered cost of wheat flour used by mills in S.I.C. 2041 in 1987 was placed at $282.2 million in the final report, up 232% from $84.9 million in 1982.

Mills in 1987 utilized 16.6 million bus of oats with a delivered cost of $27.3 million. Data on oat utilization in 1982 were withheld to avoid disclosing information on individual companies.

Use of barley in 1987 was 800,000 bus, down 38% from 1.3 million bus in 1982.

Data on utilization of sugar (cane and beet) in S.I.C. 2041 in 1987 were withheld in the Census report because the estimate did not meet publication standards on the basis of either the response rate or a consistency review. In 1982, sugar utilization aggregated 91,500 tons.

Mills in 1987 used 105.8 million lbs of fats and oils in flour and prepared flour mixes, with a delivered cost of $22.2 million. In 1982, mills used 77.4 million lbs of fats and oils, with delivered cost of $25.5 million.

Establishments in the Flour and Other Grain Mill Products Industry in 1987 spent $98.1 million on paper shipping sacks, up 150% from $39.2 million in 1982.

Mills used 64 million textile bags, including burlap, cotton and polypropylene, in 1987, up 7% from 60.6 million in 1982. Delivered cost of textile bags in 1987 was placed at $15.9 million, down 5% from $16.8 million in 1982.

Data on S.I.C. 2045

Utilization of wheat flour by establishments in the newly defined Prepared Flour and Mixes and Doughs Industry, S.I.C. 2045, totaled 19,972,000 cwts in 1987, with a delivered cost of $195.3 million. Data for 1982 are not strictly comparable because of the new industry classification.

Establishments in S.I.C. 2045 used 384,100 cwts of non-wheat flour and prepared flour mixes in 1987, with a delivered cost of $37.1 million.

Usage of sugar by the Prepared Flour Mixes and Doughs Industry in 1987 totaled 196.2 million tons, with delivered cost of $101 million; fats and oils utilization was placed at 181.4 million lbs, with delivered cost of $47.4 million.

Delivered cost of flexible packaging materials used by plants in S.I.C. 2045 in 1987 was $19.5 million; delivered cost of paperboard containers, boxes and corrugated paperboard totaled $88.2 million.

Delivered cost of all materials, ingredients, containers and supplies used by S.I.C. 2045 in 1987 aggregated $1,208.3 million.

Capital spending off

Expenditures for new plant and equipment by the 358 establishments in the Flour and Other Grain Mill Products Industry in 1987 were $79.5 million, down 12% from $90.6 million in 1982 but up from $52.4 million in 1977. The downturn in 1987 spending followed the pattern of most other industry categories in S.I.C. 20, Food and Kindred Products. Of the 37 food industries in S.I.C. 20 for which comparable data are available, capital spending in 1987 was below 1982 levels in 22 industries.

Combining the 1987 capital expenditures for new plant and equipment of $79.5 million and Annual Survey of Manufactures estimates for capital spending in S.I.C. 2041 provided an aggregate of $358.3 million in the five-year period ended in 1987. A comparable total for the five-year period in 1982 was $336.5 million.

The 1987 aggregate of $79.5 million for capital expenditures included $67.4 million for new machinery and equipment and $12.1 million for buildings and other structures, against $70.1 million and $20.5 million, respectively, in 1982. Thus, companies in 1987 spent only 4% less than in 1982 on new machinery and equipment but 41% less on buildings and other structures.

In the Prepared Flour Mixes and Doughs Industry, the 149 plants spent $66.1 million on new capital expenditures in 1987. Of that total, $55 million was for new machinery and equipment and $11.1 million was for buildings and other structures.